

IN THE CLAIMS:

Claims 1 has been amended. Claims 5 - 8 have been added.

1. (currently amended) An optical disk recording and reproducing apparatus and reproducing apparatus being operative in a read mode for controlling a laser driver to maintain a laser power at a target read level so as to read a signal from an optical disk, and being operative in a write mode for controlling the laser driver to alternate the laser power between a target write level and a target bottom level comparative with the target read level so as to write a signal into the optical disk, the apparatus comprising:

a first detector being operative in the read mode for detecting a read level of the laser power, and being operative in the write mode for detecting a bottom level of the laser power;

a first controller being operative in the read mode for outputting a read level control signal according to a difference between the detected read level and the target read level, and being operative in the write mode for outputting a bottom level control signal according to a difference between the detected bottom level and the target bottom level;

a second detector operative in the write mode for detecting a write level of the laser power;

a second controller operative in the write mode for outputting a write level control signal according to the difference between the detected write level and the target write level; and

a third controller being operative in the read mode for providing the read level control signal to the laser driver, and being operative in the write mode for alternatively

providing the write level control signal and the bottom level control signal to the laser driver in accordance with the signal to be written into the optical disk, wherein

the first controller comprises a first sample and hold section that samples the read level control signal immediately before the read mode is switched to the write mode and that holds the sampled read level control signal after the read mode is switched to the write mode, a second sample and hold section that samples the detected bottom level immediately after the read mode is switched to the write mode and then holds the sampled bottom level, and a control section that outputs the sampled and held read level control signal as a bottom level control signal immediately after the read mode is switched to the write mode, and subsequently outputs another bottom level control signal according to the difference between the detected bottom level and the target bottom level which is given in the form of the sampled and held bottom level.

2. (original) The optical disk recording and reproducing apparatus according to claim 1, wherein the first controller memorizes the sampled and held bottom level for recurrent use thereof as the target bottom level.

3. (original) The optical disk recording and reproducing apparatus according to claim 1, wherein the first controller corrects the target bottom level which is given in the form of the sampled and held bottom level in accordance with a past write level of the laser power detected when the bottom level is sampled and a current write level of the laser power detected in the write mode.

4. (original) A method of controlling an optical recording and reproducing apparatus which is operative in a read mode for controlling a laser driver to maintain a

laser power at a target read level so as to read a signal from an optical disk, and which is operative in a write mode for controlling the laser driver to alternate the laser power between a target write level and a target bottom level comparative with the target read level so as to write a signal into the optical disk, the method comprising the steps of:

detecting a read level of the laser power in the read mode to generate a read level control signal according to a difference between the detected read level and the target read level;

detecting a write level and a bottom level of the laser power in the write mode to generate a write level control signal according to a difference between the detected write level and the target write level, and to generate a bottom level control signal accordingly to a difference between the detected bottom level of the laser power and the target bottom level;

dividing a period of the write mode into a hold period immediately after the read mode is switched to the write mode and a servo period subsequent to the hold period;

providing the read level control signal, which is sampled and held immediately before the read mode is switched to the write mode, to the laser driver in the hold period;

sampling a bottom level detected in the hold period; and

setting the sampled bottom level to the target bottom level for the servo period.

5. (new) An optical disk recording and reproducing apparatus being operative in a read mode for controlling a laser driver to maintain a power of a laser beam at a target read power level so as to read a signal from the optical disk, and being operative in a write mode for controlling the laser driver to alternate the power of the laser beam

between a target write power level and a target bottom power level so as to write a signal into the optical disk, the apparatus comprising:

a first detector being operative in the read mode for detecting a read power level of the laser beam, and being operative in the write mode for detecting a bottom power level of the laser beam;

a first controller being operative in the read mode for outputting a read power level control signal according to a difference between the detected read power level and the target read power level; and being operative in the write mode for outputting a bottom power level control signal according to a difference between the detected bottom power level and the target bottom power level;

a second detector operative in the write mode for detecting a write power level of the laser beam;

a second controller operative in the write mode for outputting a write power level control signal according to a difference between the detected write power level and the target write power level; and

a third controller being operative in the read mode for providing the read power level control signal to the laser driver, and being operative in the write mode for alternatively providing the write power level control signal and the bottom power level control signal to the laser driver in accordance with the signal to be written into the optical disk, wherein

the first controller comprises a first sample and hold section that samples the read power level control signal immediately before the read mode is switched to the write mode and that holds the sampled read power level control signal after the read

mode is switched to the write mode, a second sample and hold section that samples the detected bottom power level in an initial period of the write mode immediately after the read mode is switched to the write mode and then holds the sampled bottom power level in a remaining period of the write mode, and a control section that outputs the sampled and held read power level control signal as a bottom power level control signal in the initial period of the write mode, and subsequently sets the sampled and held bottom power level as the target bottom power level in the remaining period of the write mode.

6. (new) The optical disk recording and reproducing apparatus according to claim 5, wherein the first controller memorizes the sampled and held bottom power level for recurrent use thereof as the target bottom power level.

7. (new) The optical disk recording and reproducing apparatus according to claim 5, wherein the first controller corrects the target bottom power level, based on a past write power level of the laser beam detected when the bottom power level is sampled, a current write power level of the laser beam detected in the write mode.

8. (new) A method of controlling an optical recording and reproducing apparatus which is operative in a read mode for controlling a laser driver to maintain a power of a laser beam at a target read power level so as to read a signal from an optical disk, and which is operative in a write mode for controlling the laser driver to alternate the power of the laser beam between a target write power level and a target bottom power level comparative with the target read power level so as to write a signal into the optical disk, the method comprising the steps of:

detecting a read power level of the laser beam in the read mode to generate a

read power level control signal according to a difference between the detected read power level and the target read power level;

detecting a write power level and a bottom power level of the laser beam in the write mode to generate a write power level control signal according to a difference between the detected write power level and the target write power level, and to generate a bottom power level control signal according to a difference between the detected bottom power level of the laser beam and the target bottom power level;

dividing a period of the write mode into a hold period immediately after the read mode is switched to the write mode and a servo period subsequent to the hold period;

providing the read power level control signal, which is sampled immediately before the read mode is switched to the write mode, to the laser driver in the hold period;

sampling a bottom power level detected in the hold period; and

setting the sampled bottom power level to the target bottom power level for the servo period.